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plained of in the neighborhood of Perovsk, while a third kind called "pruss" have been destructive in the Zarafshan valley.—In the *Annales des Sciences Naturelles* for Dec., 1884 (received in July, 1885), M. Viallanes publishes an important paper on the optic ganglion of *Æschna maculatissima*, illustrated by three phototypic plates. He also is working at the nervous centers of the Orthoptera.—A Naturalist's Wanderings in the Eastern Archipelago, by Henry O. Forbes, contains many interesting notes regarding the insect life of Java, Sumatra and the Moluccas, as well as Timor.—It appears from the report of Professor Snow, entomologist of the State Board of Agriculture of Kansas, that the Hessian fly has greatly increased in that State, having appeared in fifty-seven of the eighty-one organized counties. This increase in area of distribution is to be accounted for from the fact that the species is two-brooded, and that the second or spring brood made its presence felt in many counties in which the first brood was not sufficiently numerous to attract attention. A new destructive insect is the web-worm, a pyralid caterpillar whose ravages have been thus far confined to Kansas, and has been injurious to corn and potatoes. It is said to occur in Texas, where it is known as the cotton-worm.

ZOÖLOGY.

THE SKELETON OF THE MARSIPOBRANCHI.—Mr. W. Parker contributes to the Transactions of the Royal Society, 1883, a study of the skeleton of the marsipobranchs. At the outset he states that the hag and *Bdellostoma* are a greatly modified and arrested sand lance or *Ammocete*, and that a larval frog is 'also a marsipobranch. He remarks: I feel satisfied that the *Anura* have only gradually become metamorphosed, and I doubt whether *all the larvæ of Pseudis* undergo that change, even now." The adult lamprey, like the tadpole, is truly suctorial, but the mouths of the *Ammocete* or larval lamprey, and of the *Myxinoids*, are not modified into a circular sucking ring, but remain as a small hooded opening fringed with short barbels.

All the cartilage of the hag fish is *cephalic*, for even the farthest rudiment of the dorsal part of the branchial basket is supplied by the vagus nerve, and the spinal region is only supported by membrane or fibrous tissue. No cartilaginous rudiments of vertebral arches can be found. Notwithstanding the ammocetine type of the *Myxinoids*, they come near to the lamprey in some particulars, and in the perfection of the cranial basket-work, the specialization of the respiratory pouches, the presence of a prenasal median cartilage, and the cartilaginous rings which encase the long tube opening to the olfactory sac, they go beyond it, as also in the development of the *lingual* suctorial apparatus. Professor Huxley and Mr. Parker agree

in thinking that in the transformed lamprey there is a true mandibular rudiment.

THE STAR-NOSED MOLE AMPHIBIOUS.—On June 7th, 1885, we were favored with the opportunity to witness the skill and ease with which a star-nosed mole (*Condylura cristata*) propelled itself through the water. Standing near an expanded portion of a clear meadow brook, we noticed an object moving rapidly near the bottom. So swift were its movements that the eye was troubled to follow them. The zigzag course which the animal followed as it passed between the stones was suggestive of the movements of a frog, seeking refuge when frightened. After leaving the center of the pool it swam directly and rapidly to the opposite bank, keeping under the water all the time, and entered one of its galleries, which we afterwards found in trying to capture the specimen. A very interesting note on the amphibious habits of this mole was given by Dr. C. Hart Merriam in *Science*, Vol. iv, No. 92, Nov. 7, 1884, p. 429.—*A. K. Fisher, M.D., Sing Sing, New York, June, 1885.*

IRIDESCENCE IN THE OREGON MOLE.—In examining alcoholic specimens of *Scapanus townsendi* Bachman, from Klamath basin, Oregon, kindly presented to me by Captain Chas. E. Bendire, U. S. A., I have been surprised to observe a play of iridescent metallic colors, particularly when the animals were viewed by reflected light. The prevailing tints are purple, lilac, and bronze, often showing a rich coppery or brassy luster.

It was doubtless a similar condition which led Cassin to apply the names *S. æneus* and *S. metallescens* to an alcoholic specimen in the museum of the Philadelphia Academy.¹

I am informed by Dr. Geo. E. Dobson, F. R. S., that the brilliant hues of the African genus *Chrysochloris* are much intensified by immersion in spirits.—*C. Hart Merriam.*

THE PINE MOUSE IN NORTHERN NEW YORK.—On the 13th of June, 1884, at my home in Lewis county, New York, I caught a female pine mouse (*Arvicola pinetorum* LeConte). It was taken in a trap baited with beechnuts and set for the red-backed wood mouse (*Evotomys rutilus* Gapperi) at the roots of a maple in the border of a hard-wood forest. This species has not been previously recorded from so far north in the Eastern States, Massachusetts having been given as the limit of its northern range. Its rarity appears from the fact that this is the only individual ever procured here, while of the common meadow mouse (*Arvicola riparius*) I have taken several hundred specimens.

¹ This was suspected by Professor Baird nearly thirty years ago, for he said: "I am not prepared to admit the *Scalops æneus* of Mr. Cassin as distinct from *S. townsendii*. The smaller size would belong to a young specimen, and the peculiar combination of the brassy color with the black nails and feet might be the natural result of long immersion of the animal in alcohol." (*Pacific Railroad Reports*, Vol. VIII, 1857, p. 67.)

The pine mouse is said to be common on Long Island, and Audubon and Bachman speak of it as "quite abundant * * * in the immediate vicinity of New York."¹—*C. Hart Merriam, M. D.*

CAPTURE OF THE PINE MOUSE AT SING SING, NEW YORK.—Until the present year we have never detected the pine mouse (*Arvicola pinetorum*) in this locality. On Feb. 12th, 1885, a specimen was picked up on the road-side, dropped probably by some bird of prey as shown by the claw marks on it. A week later, we had occasion to examine a hole in an old apple tree occupied by a screech owl (*Scops asio*). Besides specimens of the mole (*Scalops aquaticus*), and meadow mice (*Arvicola riparius*), we found four pine mice, two of which were uninjured. The only other specimen noted was shot March 3d, while running on top of the snow.—*A. K. Fisher, M. D., Sing Sing, New York.*

A NEW GENUS AND SPECIES OF SHREW.—In the Transactions of the Linnæan Society of New York, Dr. C. Hart Merriam describes and figures a shrew of more than ordinary interest captured by Captain Bendire near Fort Klamath. It is one of the largest of the shrews, is the type of a new genus, and is called *Atophyrax bendirii*. Bendire's shrew differs from all existing genera in external, cranial and dental characters. It has affinities with both *Sorex* and *Neosorex*, and is in some respects intermediate between them, though in some respects it passes *Neosorex* in the direction away from *Sorex*. It also possesses characters of its own not found in either of these genera. Dr. Merriam thinks that it in common with *Neosorex* was early differentiated from a group of thirty-two toothed shrews of which the genus *Sorex* contains the near-living allies. "Having abandoned a fossorial for, in the one case a natatory, in the other a paludal habit, *Neosorex* and *Atophyrax* doubtless began to diverge in the same direction, their distinctive features having been developed and intensified as their peculiarities of habit became fixed—each retaining in different degrees of modification certain characteristics of the original stock."

HARELDA GLACIALIS AT NEW ORLEANS.—An old male in winter plumage was shot on Lake Catherine, a salt water bay a short distance from the city, on Feb. 28th, 1885. Audubon says that this duck comes down as far south as this latitude, but it is the first specimen I have seen shot in this neighborhood.

The skin of this bird is in my possession.—*G. Kohn, 14 Carondelet St., New Orleans.*

ORIGIN OF THE AMERICAN VARIETIES OF THE DOG.—The impression that the domestic dog of the old world has descended from wild species distinct from the wolf may be well founded, but in America the evidence tends to prove that the Eskimo, and other

¹ Quadrupeds of North America, Vol. II, 1851, p. 219.

domestic varieties of dogs were domesticated by the aborigines and used by them long anterior to the discovery of the continent by the Europeans, the varieties in question originating from the gray wolf or prairie wolf. First as to the Eskimo dog. From the following extract from Frobisher it appears evident that the Eskimo had the present breed of domestic dogs long anterior to the year 1577. Frobisher's account of the Eskimo themselves is, so far as we know, the first extant, and is full and characteristic. After describing the natives he goes on to say: "They frank or keepe certaine dogs not much much vnlike wolues, which they yoke together, as we do oxen and horses, to a sled or traile: and so carry their necessities over the yce and snow from place to place: as the captive, whom we haue, made perfect signes. And when those dogs are not apt for the same vse: or when with hunger they are constrained for lack of other viduals, they eate them: so that they are as needfull for them in respect of their bignesse, as our oxen are for vs." ¹

Regarding the Eskimo dog, Richardson remarks in his *Fauna Boreali-Americana*, p. 75: "The great resemblance which the domestic dogs of the aboriginal tribes of America bear to the wolves of the same country, was remarked by the earliest settlers from Europe (Smith's Virginia), and has induced some naturalists of much observation to consider them to be nearly half-tamed wolves (Kalm). Without entering at all into the question of the origin of the domestic dog, I may state that the resemblance between the wolves and the dogs of those Indian nations, who still preserve their ancient mode of life, continues to be very remarkable, and it is nowhere more so, than at the very northern extremity of the continent, the Esquimaux dogs being not only extremely like the gray wolves of the Arctic circle, in form and color, but also nearly equaling them in size. The dog has generally a shorter tail than the wolf, and carries it more frequently curled over the hip, but the latter practice is not totally unknown to the wolf. * * * I have, however, seen a family of wolves playing together, occasionally carry their tail curled upwards."

The Hare Indian dog is also supposed to be a domesticated race of the prairie dog, as shown by the following extract from Richardson's *Fauna Boreali-Americana*:

"*Canis familiaris* var. *B. lagopus*, Hare Indian dog. This variety of dog is cultivated at present, so far as I know, only by the Hare Indians and other tribes that frequent the border of Great Bear lake and the banks of the Mackenzie. It is used by them solely in the chase, being too small to be useful as a beast of burden or draught." It is smaller than the prairie wolf. "On comparing live specimens I could detect no marked difference in form (except the smallness of its cranium), nor in fineness of the fur,

¹ The second voyage of Master Martin Frobisher, 1577. Written by Master Dionise Settle, Hakluyt, Vol. III, new edition, London, 1810, p. 62.

and arrangement of its spots of color. * * * It, in fact, bears the same relation to the prairie wolf that the Esquimaux dog does to the great gray wolf."

Another variety of Indian dog is Richardson's *Canis familiaris* var. *D. novæcaledoniæ*, Carrier Indian dog. The Attnah or Carrier Indians of New Caledonia possess a variety of dog which differs from the other northern races. "It was the size of a large turnspit dog and had somewhat of the same form of body; but it had straight legs, and its erect ears gave it a different physiognomy."

The spitz dog, Mr. J. A. Allen informs us, is with little doubt a domesticated subarctic variety of the prairie wolf.

Sir John Richardson in the Appendix to Back's Narrative, Paris, 1836, p. 256, remarks: "Indeed, the wolves and the domestic dogs of the fur countries are so like each other, that it is not easy to distinguish them at a small distance; the want of strength and courage of the former being the principal difference. The offspring of the wolf and Indian dog are prolific, and are prized by the voyagers as beasts of draught, being stronger than the ordinary dog."

The origin of the ordinary Indian dog of North America is obscure, but Richardson, who names it *Canis familiaris* var. *C. canadensis*, North American dog, throws much light on its origin:

"By the above title I wish to designate the kind of dog which is most generally cultivated by the native tribes of Canada, and the Hudson Bay countries. It is intermediate in size and form between the two preceding varieties, and by those who consider the domestic races of dog to be derived from wild animals, this might be termed the offspring of a cross between the prairie and gray wolves. * * * The fur of the North American dog is similar to that of the Eskimaux breed, and of the wolves. The prevailing colors are black and gray, mixed with white. Some of them are entirely black. * * *" He quotes from Theodat's "Canada," written in 1630, to show that of the early period, and "perhaps even before the arrival of Europeans, they formed an esteemed article of food of the natives." Confirmatory of the theory of the Pre-columbian origin of the Indian dog may be cited the following extract from Hakluyt's Voyages regarding the Indian dogs seen on Cape Breton island, p. 1593:

"Here divers of our men went on land upon the very cape, where, at their arrivall they found the spittes of Oke of the savages which had roasted meate a little before. And as they viewed the cuntry they sawe divers beastes and foules, as blacke foxes, deere, otters, great foules with red legges, pengwyns, and certain others. * * * Thereupon nine or tenne of his fellows running right vp over the bushes with great agilitie and swiftnesse came towards vs with white staves in their hands like halfe pikes, and their dogges of colour blacke not so bigge as a grayhounds

followed them at the heeles ; but wee retired vnto our boate without any hurt at all received." (The voyage of the ship called the *Marigold* of M. Hill of Redrise vnto Cape Breton and beyond to the latitude of 44 degrees and an half, 1593, written by Richard Fisher Master Hilles man of Redriffe. Hacluyt, III, 239.)

It is probably this variety, the bones of which have been found by Dr. J. Wyman, in the shell heaps of Casco bay, Maine.

"The presence of the bones of the *dog* might be accounted for on the score of its being a domesticated animal, but the fact that they were not only found mingled with those of the edible kinds, but like them were broken up, suggests the probability of their having been used as food. We have not seen it mentioned, however, by any of the earlier writers, that such was the case along the coast, though it appears to have been otherwise with regard to some of the interior tribes, as the Hurons. With them, game being scarce, "venison was a luxury found only at feasts, and dog flesh was in high esteem." * * * A whole left half of the lower jaw of a *wolf* was found at Mount Desert, measuring 7.5 inches in length, making a strong contrast in size with a similar half from a dog found at Crouch's cove. This was more curved, and had a length of a little less than five inches." (AMER. NAT., I, 576, Jan. 1868.)

It is possible that the Newfoundland dog was indigenous on that island, and also an offshoot of the gray wolf, allied to the Eskimo. In their "Newfoundland," Messrs Hatton and Harvey say that there are few fine specimens of the world-renowned "Newfoundland dog" to be met with now in the island from which it derived its name. "The origin of this fine breed is lost in obscurity. It is doubtful whether the aborigines possessed the dog at all ; and it is highly improbable that the Newfoundland dog is indigenous. Some happy crossing of breeds may have produced it here. The old settlers say that the ancient genuine breed consisted of a dog about twenty-six inches high, with black ticked body, gray muzzle, and gray or white stockinged legs, with deer claws behind." Judicious treatment has greatly improved the breed. "Their color is white with black patches, curly coats, noble heads and powerful frames. The favorite Newfoundland dog at present is entirely black, of large size, from twenty-six to thirty inches in height, remarkable for his majestic appearance. It is now generally admitted that there are two distinct types of the Newfoundland dog, one considerably larger than the other, and reckoned as the true breed ; the other being named the Labrador, or St. John's, or Lesser Newfoundland. The latter is chiefly found in Labrador, and specimens are also to be met with in Newfoundland," pp. 194-195.

Regarding the dogs of the Mexican Indians, Nadaillac says in his Prehistoric America : "The European dog, our faithful com-

panion, also appears to have been a stranger to them.¹ His place was very inadequately filled by the coyote,² or prairie wolf, which they kept in captivity and had succeeded in taming to a certain extent."

In a recent visit to Mexico, not only along the railroads, but in the course of a stage ride of about five hundred miles through provincial Mexico, from Saltillo to San Miguel, we were struck by the resemblance of the dogs to the coyote; there can be little doubt but that they are the descendants of a race which sprang from the partly tamed coyote of the ancient Mexican Indians. At one village, Montezuma, we saw a hairless or Carib dog as we supposed it to be; similar dogs are sometimes seen in the United States.

Finally that the domestic dog and gray as well as the prairie wolf will hybridize has been well established.

Dr. Coues has observed hybrids between the coyote and domestic dog on the Upper Missouri (see the *AMERICAN NATURALIST*, 1873, p. 385). To this we may add our own observations made at Fort Claggett on the Upper Missouri in June, 1877. We then were much struck by the wolf-like appearance of the dogs about an encampment of Crow Indians, as well as the fort; they were of the size and color of the coyote, but less hairy and with a less bushy tail. They were much like those lately observed in Mexico, and I have never seen such dogs elsewhere. Their color was a whitish tawny, like that of the Eskimo dog.

Confirmatory of these observations is the following note by J. L. Wortman in the report of the Geological Survey of Indiana for 1884: "During extended travel in Western U. S. my experience has been the same as that recorded by Dr. Coues. It is by no means uncommon to find mongrel dogs among many of the Western Indian tribes, notably among Umatillas, Bannocks, Shoshones, Arrapahoes, Crows, Sioux, which to one familiar with the color, physiognomy and habits of the coyote, have every appearance of blood relationship, if not, in many cases, this animal itself in a state of semi-domestication. The free inter-breeding of these animals, with a perfectly fertile product, has been so often repeated to me by thoroughly reliable authorities and whose opportunities for observation were ample, that I feel perfectly willing to accept Dr. Coues' statement."

To these statements may be added that of Mr. Milton P.

¹ Certain kinds of dogs were, however, domesticated in America. They were called *Xulos* in Nicaragua, *Tzomes* in Yucatan, and *Techichis* in Mexico. These were considered to afford very delicate food after having been castrated and fattened.

² *Canis latrans* Baird. In a description of Virginia, published in 1649, we read: "The wolf of Carolina is the dog of the woods. The Indians had no other curs before the Christians came amongst them. They are made domestic. They go in great droves in the night to hunt deer, which they do as well as the best pack of hounds."

Pierce, published in *Forest and Stream* for June 25, 1885, as follows: "Hybrid wolves have always been very common along our Western frontiers. I have seen several of them, sired both by dogs and wolves, and all I have seen have resembled wolves rather than dogs." It is to be hoped that our mammalogists may collect and examine this subject, particularly the skulls and skins of numerous specimens both of dogs and wolves and of the hybrids between them. Farther observations are also needed as to the fertility of the hybrids.—*A. S. Packard.*

ZOOLOGICAL NEWS.—*General.*—MM. G. Pouchet and T. de Guerne have examined the organisms taken by net in the Baltic, in 1884, by the Prince of Monaco. The region fished over extended from $54^{\circ} 59'$ N. lat., at $14^{\circ} 48'$ long. W. of Paris, to the end of the Gulf of Finland. It seems that the pelagic fauna of this gulf resembles that of the great lakes of Europe, as made known by Forel, Lilljeborg, and others. Certain species of Cladocera are very common, and, as in the lakes, are attacked by parasitic cryptogams. Numerous Infusoria and rotifers of the genus *Anuræa* augment the resemblance to the fauna of the Scandinavian lakes. The central basin of the Baltic offers characters transitional between those of fresh and salt water.

Sponges.—Mr. H. I. Carter (*Ann. and Mag. Nat. Hist.*, February, March and April, 1885), describes numerous new species of sponges from the neighborhood of Port Philip Heads, South Australia, and also contributes a note upon the mode of circulation in the Spongida.

Cœlenterates.—Professor Allman recently read before the Linnæan Society descriptions of thirty-eight new species of hydroids, belonging to twelve genera. The plumularian genus *Podocladium* is very remarkable, not only by the possession of both fixed and movable nematophores, but by the fact that every hydrocladium is supported on a cylindrical jointed peduncle. *Thuiaria heteromorpha* combines upon one hydrophyton no less than three morphological types, yet Mr. Allman regards the generic position as determined by the one which most decidedly prevails in it.

Mollusks.—M. Lacaze Duthiers has instituted a comparison between the ordinary slugs and the genus *Testacella*. Especially he has compared the nervous systems and traced out the homologies of the nerves. In the slug the rudimentary mantle is situated upon the back, while *Testacella* carries its small shell and underlying mantle on the under side of its posterior extremity, yet the innervation of these parts is the same. The *Testacella* is not a vegetable eater, but searches for and devours worms by following them into their holes, and M. Lacaze Duthiers believes it to be a slug gradually altered and transmitting its altered characters by heredity.—W. E. Hoyle (*Ann. and Mag. Nat. Hist.*, March,

1885) gives the diagnoses of twenty species of Cephalopoda collected during the cruise of the *Challenger*. The new kinds are *Octopus verrucosus*, the minute hectocotylus of which is present, *O. boscil*, var. *pallida*, *O. australis*, *O. hongkongensis*, *O. tonganus*, hectocotylus present, *O. vitiensis*, *O. duplex*, and four other species of Octopus besides *O. januarii*, Steenstrup M. S.; *Eledone rotunda* and *E. brevis*, *Fapatella* (nov. gen.) *prismatica* and *diaphana*; *Cirrolentha magna*, *meangensis*, and *pacifica*, and *Amphobrebus pelagicus*, nov. gen. et sp.—Mr. A. H. Cooke republishes, with additions and corrections, a list of the testaceous mollusks obtained by R. MacAndrew in the Gulf of Suez. Of nineteen species of Cypræa found, nine occur at the Sandwich islands, six in Japan, eight in Australia and five at Natal, and of seven species of Triton two are common to the Sandwich islands, two to Japan and one to Australia.

Crustacea.—E. J. Miers (*Ann. and Mag. Nat. Hist.*, January, 1885) gives a synopsis of the species of Micippa and Paramicippa. He allows six species of the former genus (*M. cristata*, *mascarenica*, *philyra*, *spinoſa*, *curtispinga*, and *thalia*), all of which seem to be restricted to the shallower waters of the Indo-Pacific, and only by one species of the latter genus (*P. tuberculosa*).—In the same issue of the same periodical the Rev. Thomas R. R. Stebbing describes *Cyproidia damnoniensis*, a new English amphipod.—M. W. Czerniawsky has published at Kharkoff a work on the littoral decapodous Crustacea of the Black sea. The number of Pontic decapods has been increased by twenty, thus reaching forty-eight species. The author arrives at some interesting conclusions as to genealogy. The nine different stages of the metamorphosis of Carcinus are, he says, a repetition of its genealogy; all three species of Astacus found in the Ponto-caspian fauna are maritime forms which have immigrated into sweet water, and even *Astacus pachypus* of the mountain lake Abrau is the remainder of a maritime fauna, so also Thelphusa, which has gigantic representatives in the South Caspian. *Eriphia spinifrons* and *Carcinus maenas* reach a very large size on the shores of the Crimea and at Odessa. While most crabs reach their fullest development only in very salt and warm water, others reach the same size under reverse conditions. The decapods of the Sea of Azov have not yet been explored.

Fishes.—Professor Fritsch has been induced by the examination of the peculiar flap-like appendages of Lophius to search for corresponding peculiarities in the nervous system, peculiarities which he soon discovered in the medulla oblongata. On the posterior side of the medulla, quite superficially situated, he found a group of huge ganglion-cells, such as had hitherto only been found in Malapterurus. While the latter fish had but two such cells, Lophius had a larger number.

Reptiles and Batrachians.—G. A. Boulenger gives a list of thirty-one reptiles and sixteen batrachians from the province of Rio Grande do Sul, Brazil, collected by Dr. H. von Ihering. The new species are *Enyalius iheringii*, and *Liolaemus occipitalis* (Lacertilia), and *Coronetta iheringii*.

EMBRYOLOGY.¹

ON THE AVAILABILITY OF EMBRYOLOGICAL CHARACTERS IN THE CLASSIFICATION OF THE CHORDATA [*concluded*].—1. The lowest major subdivision of the Endocyemate subphylum embraces forms in which the ovum is invested by a zona radiata, external to which comes an additional investment of albuminous matter secreted by the oviduct, this albuminous envelope being usually in turn covered by a fibrous membrane immediately overlaid by a porous, more or less calcareous shell, also secreted by the oviduct. Chalazæ are often developed. The cleavage is partial, the germinal matter, as a rule, forms but an insignificant part of the whole ovum, and is aggregated at one pole of the latter as a blastodisk. The blastodermic vesicle is developed from the blastodisk by epiboly upon the vitelline mass, which is finally included so as to occupy a ventral position in the vesicle. Development is at most viviparous only during the very earliest stages or while the ovum is passing through the oviducts, or more or less entirely oviparous, or quite ovoviparous. The allantois is greatly developed, but never associated in the development of a true placenta, though it is usually respiratory in function.

Under this definition the three following groups seem to be appropriately included:

a. Ova buried in the earth or sand by the parent, and left to be incubated by the heat of the sun. Some species ovoviviparous. Reptilia.

b. Ova incubated by the parent in a nest specially constructed for the purpose. Aves.

c. Ova incubated by parent in an abdominal marsupium or in a nest at the end of a burrow. Recently hatched young nourished by the parent for a time upon milk secreted by mammary glands. No functional uterus. Ornithodelphia.

It may also be noted that with group *b* the distinctly warm-blooded series of the Chordata begins. The relatively high temperature of the body of the adult plays an important part in incubation or in accelerating metabolism in the embryo. The preceding three groups, on account of the many features of resemblance and reptilian traits possessed in common (group *c* being apparently affiliated with the extinct Theromorpha of Cope), might be considered to form a series to be called Paratheria.

12. The highest major subdivision of the Endocyemate sub-

¹ Edited by JOHN A. RYDER, Smithsonian Institution, Washington, D. C.